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ABSTRACT

The dugong conservation project in Cape San Agustin started about a year ago focused on community monitoring, visual sighting and photography of dugong. The results recorded active time of day dugongs were sighted, numbers, and activities as well death, stranding and recovery efforts. Dugongs were tracked across Cape San Agustin from Pujada. Associated information was gathered from the Samal-Talikud islands and Malita Bay in Davao Gulf about 100 kilometers away towards Celebes Sea. Sightings were also noted within the 100-kilometers between Baganga Bay and Hinatuan Bay towards the eastern Pacific seaboard since 2004. Sightings, strandings, deaths and recovery efforts were similarly reported in all these areas. These areas have a potential link with the southern Mindanao-Sulu-Celebes Sea area of dugong, marine mammals and endangered wildlife community.

KEYWORDS: GMAI, PCRA, Barangay, DHS, MPA, CRM, PFARO

INTRODUCTION

Dugong stranding and deaths were first known in Hinatuan Bay, Surigao del Sur in 2003 among local NGO-CERD and fisher people's organizations working on Hinatuan Bay CRM. It was made popular and famous by local VSO marine biologist volunteer Mr. Rowan documenting and writing several articles about dugong deaths and strandings in Hinatuan Bay during his 2 years of assignment. A friend from local media encouraged GMAI to venture in dugong conservation in the area after the departure of Rowan, fearing media campaign attention would not be sustained, as well as the conservation. This led us towards conducting our own survey, tracking and mapping potential dugong population, sightings and foraging areas. About 5 municipalities within Lianga and Hinatuan Bays in Surigao del Sur were surveyed on their potential for dugong conservation including sea turtles and other endangered marine mammals and wildlife. A remnant of a dugong skull with tusk was found in the boundary municipality of Lingig with Davao Oriental. Dozens of carapace were uncovered also kept by local fishermen. Dugong conservation in Hinatuan Bay appeared to be followed through by local CERD team and partner people's organizations effectively. Thus we continue our search towards Davao Oriental in Pujada Bay where recent Participatory Coastal Resource Assessment (PCRA) and documentation of dugong had been established in 2004.

MATERIALS AND METHODS

The project started about a year ago documenting

and recording dugong sightings and cases of stranding in Pujada Bay towards Cape San Agustin (Fig. 1) near Davao Gulf. The 3 villages or barangay of Mati are located towards Cape San Agustin. They are about 100 kilometers away from the nearest town center and with an estimated 30 kilometers of inaccessible forested and mountainous coastline. Macamabul, Kabuaya and Luban were finally chosen as the focus area for observation, monitoring and documentation between December 2005 and September 2006, a 10-month period. About 25 local monitors equipped with local motorized canoes were selected mostly from among spear and artisanal fishermen, and provided with log-books and automatic underwater cameras. Date of logs were noted, time of the day as well observations on sighting or activity of dugongs and the number of dugongs sighted at a time. We used a four wheel utility vehicle combined with walking along the coastline doing a parallel survey and information gathering of dugongs and other endangered marine wildlife sightings, strandings or catch and deaths. These were undertaken adjacent to the 3 barangay communities towards Cape San Agustin Peninsula in Governor Generoso.

RESULTS

About 37 sightings were noted within the 50-kilometer coastline covering the 3 fishing villages or barangay. Surveillance in the previous 7 months (December 2005 to June 2006) by local fishermen-monitors through visual sightings, observations and photos with underwater camera,

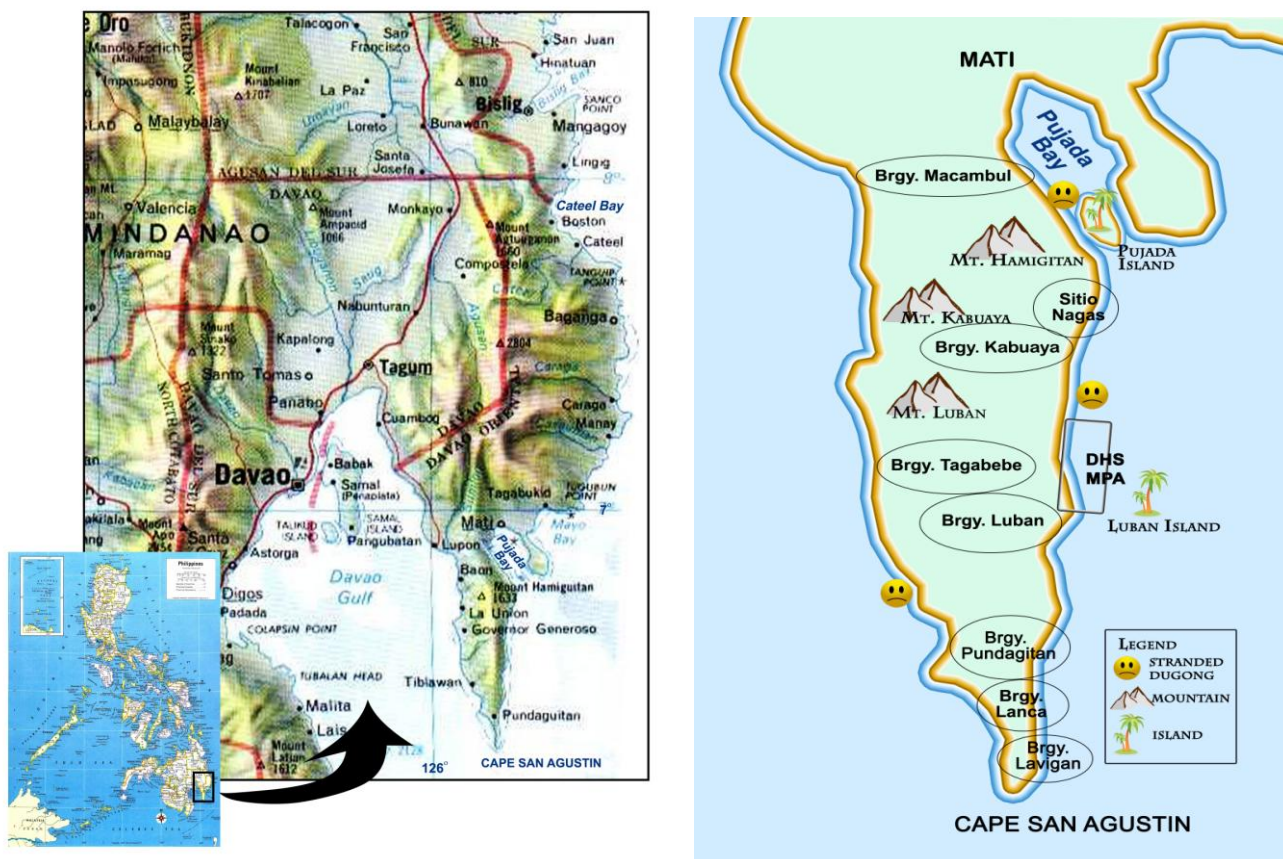


Fig. 1 Sketch map of Cape San Agustin Peninsula and map of Southern Mindanao and Philippines (inset)

Table 1 A brief summary of Pacific region climate between June and August 2006

June 2006	July 2006	August 2006
Storm tracks continue moving north as Eastpac high becomes firmly established.	East Pac high remains firmly established	East Pac high remains firmly established
Tropical cyclone activity increases in northwestern Pacific with an average of two systems of tropical storm strength or greater	Tropical cyclone activity increases in northwestern Pacific with an average of about four systems of tropical storm strength or greater.	Tropical cyclone activity peaks in the northwestern and northeastern Pacific and is a major concern for operations
Southwest monsoon becomes established in western Pacific bringing an increase in rain shower and thunderstorm activity	Southwest monsoon continues in western Pacific bringing an increase in rain shower and thunderstorm activity	Average of eight systems of tropical storm strength or greater in the northwestern Pacific.
Southwest monsoon becomes established in western Pacific bringing an increase in rain shower and thunderstorm activity	One storm hit Southern Mindanao.	
One storm hit Northern Mindanao		

recorded 12 sightings in Kabuaya, 4 in Luban and 6 in Macambul. From July to September 2006, there were an additional 5 sightings in Kabuaya, 7 in Luban and 3 in Macambul. A 6 -7 ft carcass of a dead dugong was retrieved last August 7, 2006 in Kabuaya. One clear underwater photo was taken of a live dugong last July 8, 2006 in Kabuaya. Coastal survey revealed several sighting of dugong in Lavigan, Cape San Agustin including one

accidentally caught by net and slaughtered last June in Tagabebe, Governor Generoso.

Most of the sightings were observed early morning from 8 to 10 AM and early in the afternoon. Common sightings of dugong in groups of 2 or 3 were recorded with a few solitary or more than 3 in number. The Endangered Philippine eagle (*Pithecophaga jefferyi*) and a colony of flying fox (*Acerodon jubatus*) are found in Mt. Kabuaya and

Luban island, respectively. We also discovered large and small mining exploration, road building, lumbering and new settlements in this narrow mountain peninsula. Mt. Hamiguitan was declared a protected area famous with pygmy forest, typically stunted Philippine pines including huge *agoho*. Mt. Kabuaya has also 7 thousand hectares proclaimed as a wildlife sanctuary for the Philippine eagle, while Pujada Bay is a proclaimed a protected landscape and seascape with inactive protected area management board.

Foraging areas were surveyed through manta-tow involving the same local fishermen utilizing small engine motorboats. Feeding tracks and foraging areas were located and four communities of seagrass beds were mapped and sketched. Some areas were located as deep as 80 to 100 feet in barangay Luban and Kabuaya towards Cape San Agustin. Randomly scattered coral reefs and sea grasses with coral reefs well established in shallow areas preceding sea grass outwards is peculiar in the area. However, the 30 kilometer inaccessible coastline towards Macambul and Pujada Island was not included. Other observations include diadema, padina, sargassum, branching coral, sea urchins, sea cucumber, starfish, sea grapes, sea turtles, jelly fish and abundant sting ray. Reports and sightings of manta rays, sharks, dolphins and pygmy killer whales were noted. Indiscriminate poaching of sea turtles, manta rays, dolphins and sharks were reported by some fishermen. Occasional sighting of sperm whale were reported and local authorities documented a dead unidentified 8-meter whale in Cateel Bay to the north.

DISCUSSIONS

Three cases of stranding and death of dugongs were documented and recorded: one in each month of June and July with injuries from reefs and boulders, and with one accidentally caught by net and slaughtered. The 6-month period from March to August experienced extended strong easterly wind from Pacific, La Nina and a series of tropical storms systems and storm surge and rough sea conditions. This may have caused severe degradation and erosion of shallow sea grass foraging areas depriving young calf and weak from food. A series of strong tropical cyclones and storm surges hitting southern Mindanao were experienced during June (2 times) to August (8 times) in 2006. These had weakened and disoriented them in their search for food towards shallow reefs and coastal boulders, causing injuries and death. Unverified reports on baby dugongs stranded and pushed back to water by local fishermen needs confirmation.

FINDINGS

Local taboo and practices traditionally protected dugongs from harm, however accidental catch in nets and fish pens is recurring. A 75-hectare (1.5 km X 0.5 km) dugong habitat sanctuary (DHS) was established in barangay Kabuya assisted by GMAI and funded by IUCN-NL. It is intended also as MPA to protect artisanal fisheries from encroaching “compressor dive-fisheries” and other illegal fishing activities. Planned DHS on other barangay are underway but need tedious consultation process. Demand for MPA’s was also expressed by the neighboring municipality of Governor Generoso in Cape San Agustin towards Davao Gulf. Active law enforcement initiative in Governor Generoso triggered provincial fishery aquatic resource office (PFARO) to train local fishery guardians from selected villagers and provided with fire power. Tourism promotion on whales, dugongs and wildlife watching was explored and training on home stay arrangement was provided by the provincial tourism agency. Local community initiatives in rescuing and recovering alive stranded dugongs and whales had been popularly reported. These need support for technical rescue and recovery techniques, appropriate equipment, capacity building and institutional mechanism.

THREATS AND WEAKNESSES

The recent phenomenon on commercial poaching of shark and to some extent dolphins for fins and meat use as baits in tuna fishing, fish balls and local foodstuff is alarming. Intense competition among small and commercial fisheries and between dolphins, fisheries and sharks appear to have been influenced by encroaching commercial tuna fisheries based from General Santos across Davao Gulf. High fuel cost and a shifting tuna population towards the Pacific made them established a sub-port in Macambul near Cape San Agustin in Pujada Bay bringing their flotilla of fishing, supply and carrier boats with hundreds of crews, families and fish trucks. This further aggravates local fishery conditions complicated by local stormy weather, rough seas and storm surge conditions. Remote location, inaccessibility, lack of transportation and communication equipment and absence of support of professional conservators from local government, research institutions and conservation groups hindered progress and effective dugong conservation activities. GMAI relied mostly on neophyte staff and volunteers and occasional consultant resource personnel during assessment and training. Local community capacity building, provision of surveillance, monitoring, patrol rescue and recovery equipment and ecosystem wide support

and cooperation is much needed to mitigate dugong casualties and related fishing and poaching of marine mammals.

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